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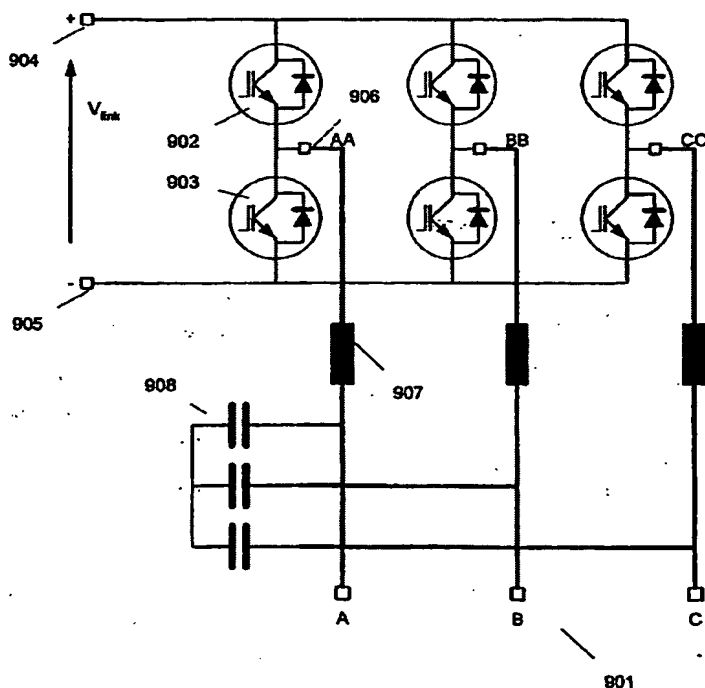
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- (54) Title: ELECTRIC SUBMERSIBLE PUMPS**



**(57) Abstract:** An electric submersible pump contains an AC permanent magnet motor having three or more phases A, B, C and has a drive circuit for supplying varying drive signals to all the phases of the motor at the same time. Each drive signal is constituted by a cyclically smoothly varying voltage applied to the corresponding motor phase during driving of the motor. The circuit comprises switches (902, 903) for each motor phase, a control arrangement for turning the switches (902, 903) on and off at a frequency greater than the frequency of the cyclically smoothly varying voltages, and a filter (907, 908) for filtering the output voltages of the switches (902, 903) to produce the cyclically smoothly varying voltages. Such a drive circuit drives all the phases of the motor continuously such that damaging transients will not arise and without requiring the motor emf or drive signals to be sinusoidal.